Name(s) of Risk Team Members: Asher Etkin, Andreas Warkentien, Mark Sardzinski		Point Value → Parameter ↓			1		2	3	4			5		5		
Job Title: Preparing for and performing modification of piping during a Permitted Confined Space Entry of a RHIC Helium Refrigerator cold box Vacuum Tanks at Bldg. 1005S or in a Valve Box Vacuum Tanks in Bldg. 1002B, 1004B,1006B, 1008B, 1010A AND 1012A Job Number or Job Identifier: JRA 23-05			Frequency (B)		≤once/year		ar	≤once/month	≤once/week		≤once/shift		>once/shift		e/shift	
Job Number of Job Identifier: JRA 23-03 Job Description: The job consists of preparing and opening the listed cold boxes and valve boxes for entry and work.			Severity (C)		First Aid Only			Medical Treatment	Lost Time	Lost Time Partial Disability			ty	Death or Permanent Disability		
Training and Procedures List (optional): C-A OPM 7.1.65 and applicable attachments, Confined Spaces – Subject Area, ES&H Standard 4.3.0, Cutting and Welding, Confined Space Entry Training, Confined Space Atmosphere OJT Approved by: E. Lessard Date: 5-13-05 Rev. #: 0			Likelihood (D)	Extremely Unlikely			nlikely	Unlikely	Possible	Probable			Multiple			
Stressors (if applicable, pleas	e list all):	Reaso	on for Revision (if a	pplicab	le):											
		·		Befo	ore A	Additio	nal Co	ontrols	•		Aft	er Ad	dition	al Co	ntrols	
Job Step / Task	Hazard	Control(s)	Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD Control(s)	Added to Reduce Risk	Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	% Risk Reduction
Prepare the valve box system for entry	Potential for hazardous energy sources after entry	Physical barrier preventing entry to vacuum, shutdown insulating vacuum, system prior to entry and fill the syroom air, procedures for entry, has Lockout Tagout hazardous energy where applicable, safety glasses, to	oace with d hats, sources	1	1	1	2	2								
Prepare the cold box system for entry	Potential for hazardous energy sources after entry	Physical barrier preventing entry to vacuum, shutdown insulating vacuum, system prior to entry and fill the system prior to entry and fill the system air, procedures for entry, has Lockout Tagout hazardous energy where applicable, safety glasses, to	inder N num pumping pace with rd hats, sources	1	1	1	2	2								
Open the manhole(s) for entry into box	Struck against an object if hand tools slip	Gloves, training, proper tools for t	he job N	1	1	1	2	2								
Open the manhole(s) for entry into valve box	Struck by an object if cover falls	Cover support frame, safety shoes	N	2	1	1	2	4								

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Mount vent fan or exhaust fan with hosing of sufficient length to reach top far end of tank (valve box or cold box)	Fall from height	OSHA approved platforms or man lift, training	N	1	1	5	2	10			
Enter the tank	ODH	Gas sampling probe inserted prior to entry, appropriate atmosphere testing performed with functionally-tested monitor with a valid calibration date, procedures, hard hats if required for task, safety glasses if required for task, training to assure oxygen range is above 19.5%, personal oxygen monitor, backup person/watch	N	1	1	4	2	8			
Enter the tank	Hazardous Energy Sources	Physical barrier preventing entry under vacuum, shutdown insulating vacuum pumping system prior to entry and fill the space with room air, procedures for entry, pre-approved LOTO plans, hard hats, Lockout Tagout hazardous energy sources where applicable, safety glasses, training, backup person/watch	N	1	1	4	2	8			
Cutting pipes with	Electrical	Use of GFI, training, proper tools for the job	N	2	5	1	2	20			
electrical tools	shock	properly maintained tools, work planning, procedures, PPE, backup person/watch									
Cutting pipes	Cuts	Gloves, training, proper tools for the job properly maintained tools, work planning, procedures, PPE, backup person/watch	N	2	5	1	2	20			
Cutting pipes	Eye Injuries from Chips	Training, collection of chips with vacuum, work planning, procedures, safety glasses, backup person/watch	N	2	5	1	2	20			
Cutting pipes	Burns	Gloves, training, proper tools for the job properly maintained tools, work planning, procedures, backup person/watch	N	2	5	1	2	20			
Cutting pipes	Struck by Falling Pipe	Appropriate rigging and supports, work planning, backup person/watch	N	2	5	3	1	30			
Fabricate new pipe sections	Cuts	Gloves, training, pipe stands, proper tools for the job properly maintained tools, work planning, procedures, PPE	N	2	5	1	2	20			
Welding sub-assemblies	UV eye damage	Appropriate welding hood/goggles/glasses, welding screens, training, work planning, backup person/watch	N	2	5	1	1	10			
Welding sub-assemblies	Burns	Gloves, PPE, training, work planning, backup person/watch	N	2	5	1	2	20			
Checking fit of sub- assembly	Struck by falling parts	Appropriate rigging and supports, work, backup person/watch-planning	N	2	5	3	1	30			
Welding sub-assembly into system	fire	Confined space permit, Cutting/Welding Permit, protect super insulation with welding blanket or remove, training, work planning, backup person/watch	N	2	5	3	1	30			
Welding sub-assembly into system	Toxic fumes	Confined space permit, ventilation, training, work planning, backup person/watch	N	1	5	3	2	30			

Welding sub-assembly into	Burns	Confined space permit, gloves, PPE, training,	N	2	5	1	2	20					
system		work planning, backup person/watch											
Welding sub-assembly into	UV eye	Confined space permit, appropriate welding	N	2	5	1	1	10					
system	damage	hood/goggles/glasses, training, work planning,											
		backup person/watch											
Leak Testing with Sniffer	Struck by	Confined space permit, proof testing, PPE,	N	1	3	3	1	9					
	flying parts	training, work planning, backup person/watch											
Further Description of Controls Added to Reduce Risk:													

*Risk:	0 to 20	21 to 40	41-60	61 to 80	81 or greater
	Negligible	Acceptable	Moderate	Substantial	Intolerable